

ABSTRACT OF THE DISCLOSURE

The present invention describes recombinant adenoviral vectors modified by incorporating targeting ligands or label into viral capsid or structural proteins. In one embodiment, single-chain antibody was introduced into the minor capsid proteins pIIIa or pIX so that the adenoviral vector can be targeted to a particular cell type. In another embodiment, there is provided a noninvasive imaging strategy useful for monitoring the replication and spread of conditionally replicative adenoviral vectors. Viral structural proteins such as pIX capsid protein, core proteins mu, V and VII were expressed as fusion protein with a fluorescent label. Once incorporated into the virions, detection of the structural fusion protein label would indicate the localization of the disseminated viral progeny. The detected fluorescent signals also closely correlate with the level of viral replication and progeny production.